IN THE CLAIMS

- 1-43. (Cancelled)
- 44. (Currently Amended) A An isolated peptide comprising sucrose synthase comprising of SEQ ID NO: 12.
- 45. (Currently Amended) The An isolated peptide consisting essentially of sucrose synthase as claimed in claim 44 that consists essentially of SEQ ID NO: 12.
- 46. (Currently Amended) The sucrose synthase isolated peptide as claimed in claim 45 that consists of SEQ ID NO: 12.
- 47. (Currently Amended) A method of preparing ADPG comprising the steps of incubating the <u>isolated peptide</u> sucrose synthase of claim 44 with ADP in suitable conditions for causing a reaction that produces ADPG followed by isolation and purification of the ADPG produced.
- 48. (Previously Presented) The method of preparing ADPG according to claim 47, comprising the steps of:
- a) Providing 100 ml of the following solution for the incubating step and incubating for 12 h at 37°C:

Sucrose 1 M

HEPES, pH 7.0 50 mM

EDTA 1 mM

Polyethylene glycol 20%

MgCl₂ 1 mM

KCl 15 mM

ADP 100 mM

- b) Stopping the reaction by heating,
- c) Centrifuging at 10000 g for 10 min with formation of a supernatant, and
- d) Chromatographing the supernatant by HPLC, and then eluting and purifying the ADPG.
- 49. (Previously Presented) An assay kit for the spectrophotometric, fluorimetric or amperometric determination of sucrose comprising the sucrose synthase of claim 44.
- 50. (Previously Presented) The assay kit as claimed in claim 49, comprising an incubation medium with the following components:
 - a) 2 units of sucrose synthase.
 - b) 2 mM of ADP

	c)	2 units of ADPG pyrophosphatase of plant, animal or microbial origin
,	d)	2 units of PGM
	e)	2 units of G6PDH
į	f)	0.5 mM of NAD(P)
;	g)	100 ml of reaction buffer: 50 mM HEPES, pH 7.0 $$ / 1 mM EDTA $$ / 20% polyethylene glycol $$ / 1 mM MgCl $_2$ $$ / 15 mM KCl
	h)	Previously filtered test sample.
51. (Previously Presented) The assay kit as claimed in claim 49, comprising an incubation medium with the following components:		
	a)	2 units of sucrose synthase.
1	b)	2 mM of UDP
(c)	2 units of UDPG pyrophosphatase of plant, animal or microbial origin
(d)	2 units of PGM

	e)	2 units of G6PDH	
	f)	0.5 mM of NAD(P)	
	g)	100 ml of reaction buffer: 50 mM HEPES, pH 7.0 $$ / 1 mM EDTA $$ / 20% polyethylene glycol $$ / 1 mM MgCl $_{\!2}$ / 5 mM KC1	
	h)	Previously filtered test sample.	
52. (Previously Presented) The assay kit as claimed in claim 49, comprising			
an incubation medium with the following components:			
	a)	2 units of sucrose synthase.	
	b)	2 mM of UDP	
	c)	2 units of UDPG dehydrogenase	
	d)	0.5 mM of NAD	
	e)	100 ml of reaction buffer: 50 mM HEPES, pH 7.0 $/$ 1 mM EDTA $/$ 20% polyethylene glycol $/$ 1 mM MgCl $_{\!2}$ $/$ 15 mM KCl	

- f) Previously filtered test sample.
- 53. (Previously Presented) A method of producing a transgenic plant that overexpresses sucrose synthase comprising the steps of inserting a genetic construct that contains and expresses the DNA fragment of SEQ ID NO: 11 in a suitable vector and transferring the genetic construction to the genome of a plant.
- 54. (Previously Presented) The method according to claim 53, wherein the vector comprises pSS5.
- 55. (Previously Presented) A transgenic plant comprising a genetic construct that overexpresses a sucrose synthase comprising SEQ ID NO: 12 such that the plant has a higher content of sucrose, G6P, ADPG and starch than a corresponding wild-type plant without the genetic construct.
- 56. (Previously Presented) The transgenic plant according to claim 55, wherein the transgenic plant has a level of sucrose synthase enzyme activity that is 2-10 times greater than a level of sucrose synthase enzyme activity in a corresponding wild-type plant without the genetic construct.
- 57. (Previously Presented) The transgenic plant according to claim 55, which is selected from the group consisting of a tobacco plant, a potato plant a tomato plant and a rice plant.

- 58. (Previously Presented) The transgenic plant according to claim 56, which is selected from the group consisting of a tobacco plant, a potato plant a tomato plant and a rice plant.
- 59. (Previously Presented) The transgenic plant according to claim 57, wherein the plant has leaves with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in leaves of a corresponding wild-type plant.
- 60. (Previously Presented) The transgenic plant according to claim 58, wherein the plant has leaves with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in leaves of a corresponding wild-type plant.
- 61. (Previously Presented) The transgenic plant according to claim 57, wherein the plant has at least one of a root, tuber or seed with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in a root, tuber or seed of a corresponding wild-type plant.
- 62. (Previously Presented) The transgenic plant according to claim 57, wherein the plant has at least one of a root, tuber or seed with a content of sucrose, G6P, ADPG and starch and with an amylose/amylopectin ratio that is higher than those in a root, tuber or seed of a corresponding wild-type plant.